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ABSTRACT

The competency based teacher education (CBTE) program at the University of Toledo (Ohio) is constructed around ten basic goals which are behaviorally stated and cover the fundamental tenets of the American educational system. To evaluate the program, the goals were examined in relation to five contexts which were identified as being of major importance to teacher education: (1) instructional organization; (2) educational technology; (3) contemporary learning-teaching processes; (4) societal factors in schooling; and (5) and research. Two observational systems were used to assess student teaching experiences. One required the observer to make substantial inferences as to what competencies were being demonstrated by the student teacher and the quality of the demonstration. The behavior of the teacher was not recorded. The observer worked from a stated set of indicators and descriptors for the competencies to be measured and made a judgment as to how well teacher performance fit the indicators and descriptors. The other assessment method involved observing and recording specific teacher and student behaviors. In this description of the evaluation process a chart is included illustrating the structure of the University of Toledo CBTE program and a conceptual diagram of the elements involved in teacher research and evaluation. Two graphs offer profiles of the mean competency scores for the university's student teachers obtained by the two methods of observation used in the study. (JD)

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BASIC EDUCATION: FUNDAMENTALLY A CONCERN FOR COMPETENT, EFFECTIVE TEACHERS

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When all educational factors are thoughtfully considered, the most basic element about "basic education in the real world" is the quality of the teacher and teaching involved. Nothing can be more inhibiting to pupil learning than an incompetent teacher and inadequate teaching ability. Most discussions and actions about good, basic education are limited to changes in the curriculum, the improvement of teaching textbooks and materials, the use of modern educational technology and media, and the provision of pleasant, conducive physical surroundings for the learning process. It is also absolutely necessary to have expert, competent classroom teachers. However, the supplying of such individuals in the "real world" is fundamentally based on assuming that any person experiencing a program of teacher education and/or holding an academic degree will be able to teach children in the classroom with some degree of professional and academic success. There never has been much of anything developed in the way of evidence to support this belief; the obvious is accepted and let go at that. This situation, unfortunately, leaves the most important ingredient of successful basic education to chance.

The establishment of the competency-based teacher education (CBTE) movement and general educational accountability concerns in education have put a considerable focus on teacher performance and competency. What teacher educators used to take for granted about successful teacher behavior and resultant pupil outcomes is no longer accepted unquestioningly. Dr. Donald Medley, a prominent American researcher on teacher effectiveness has said, "Only when we know why a teacher is effective--as well as how--can we decide how best to train teachers."[1] Medley has made the situation quite clear. It is one thing to develop programs to prepare, supposedly, competent teachers, but it is quite another matter to determine if the products of those programs are indeed competent professionals and effective in the probable cause and effect relationship between teacher behavior and pupil behavior and learning.

The College of Education at The University of Toledo has long been interested in the development of teacher competency as well as the necessary research/evaluation effort to determine if our teacher preparation efforts result in a teacher product truly well educated for and able in a classroom situation. The College of Education first designed and then implemented a program of teacher education called Competency Based Teacher Education to provide the teacher training which would result in the development of well qualified, excellent teachers. A corollary aspect of the effort to address teacher effectiveness was the creation of a research/evaluation program to learn if the products produced by the new teacher education curriculum were indeed competent and effective in the classroom. Both of these matters will

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[1] Donald M. Medley, Teacher Competence and Teacher Effectiveness, A Review of Process-Product Research. (Washington, D.C.: American Association of Colleges for Teacher Education, August 1977), p. 6.

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be addressed in this brief paper. A more comprehensive discussion of the subject can be found in the monograph titled, Research and Evaluation in Teacher Education: A Concern for Competent, Effective Teachers, authored by George E. Dickson and William Wiersma, Jr. and published by the Center for Educational Research and Services, College of Education, University of Toledo, Toledo, Ohio, U.S.A.

CBTE--A Response to the Concern for Teacher Effectiveness

The College of Education at The University of Toledo established a comprehensive competency-based teacher education program design in 1968. By 1973, Option 4 of that design was fully implemented for the basic elementary teacher education program. Further, a secondary CBTE program was developed and became operative as an outgrowth of elementary CBTE efforts. The implemented programs synthesized a considerable amount of knowledge about society, the learning process, teacher methodology, educational technology, instructional organization and educational research. To understand briefly what occurred, some fundamental knowledge of CBTE is necessary as well as a summary of The University of Toledo CBTE program.

Competency-based teacher education (CBTE) is a type of teacher training that focuses on the student's acquisition of specific teaching competencies. Competencies, or the knowledge, skills, attitudes and values that prospective teachers are expected to have on completion of a teacher education program, are specified as a set of learning objectives. These objectives are stated behaviorally or in such form that their achievement can be produced and observed as learner behavior and knowledge. With such objectives are established the minimum levels for their achievement, indications of the standards or "criteria" of successful attainment. The instructional program is delivered through modules where (1) the teacher competencies are specified through the use of behavioral objectives, (2) learning activities are suggested for the objectives specified which will help the student achieve a minimal level of competence, and (3) evaluations of student performance and knowledge determines whether the criteria of successful achievement of the objective(s) are achieved.

The major features of CBTE are: (1) A systems approach to teacher education, (2) The use of behavioral objectives, (3) The use of instructional modules or modularized learning experiences, (4) A concern for competency-based criteria, (5) Personalized and individualized instructional strategies, (6) An emphasis of field experiences, and (7) A method of systematic evaluation of both the student and the program. (A more detailed explanation of CBTE is found on pages 14-19 in the monograph referred to above.)

The University of Toledo's CBTE Program

The CBTE program at The University of Toledo is a single, comprehensive effort to bring about educational change in the way elementary and secondary teachers are prepared as well as educational change in schools where these teachers will likely teach. Such ideas require certain things of the teacher training process. The program is field-based (related to the real world of teaching in classrooms) to bring reality to teacher preparation. The broad goals of education are clear and firm so that the accomplishment of program

THE UNIVERSITY OF TOLEDO COMPETENCY BASED TEACHER EDUCATION PROGRAM

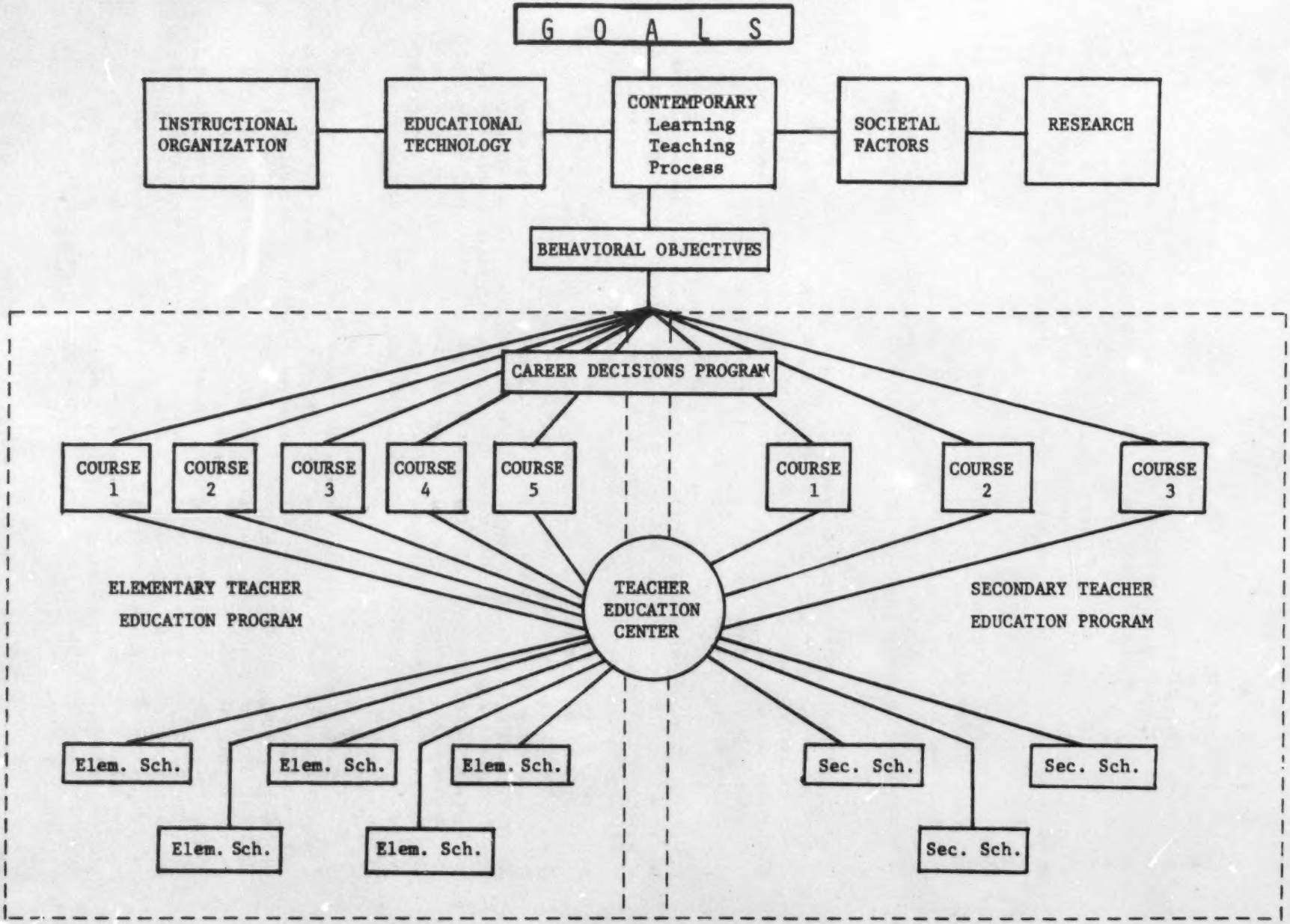

Figure 1

goals and the behavioral objectives derived from them can be demonstrated. The program of teacher training specifies the knowledge, skills, attitudes and values (competencies) needed by teachers. The program provides alternative means and varying lengths of time for reaching such competencies but all trainees meet a number of common educational objectives. The attempt is made to create a teacher training curriculum for teachers and schools which meets the individual differences of learners through individualizing the instructional process. The program incorporates the educational innovations of competency-based teacher education, competency-based education, and individually guided education.

The Toledo CBTE program has ten, basic goals of teacher education which are behaviorally stated and cover the basic tenets of the American educational system. Each of these goals begins with the phrase, "Each teacher should be prepared to employ teacher behaviors which will help every child, etc., etc." and are found in detail on pages 20 and 21 of the monograph mentioned on page two.

The ten goals were then examined in relation to five contexts which represented conditions of major importance to teacher education. The contexts were: instructional organization, educational technology, contemporary learning-teaching process, societal factors and research. The use of these contexts enabled a breakdown of the basic goals into various subjects and topics for more detailed behavioral objectives.

Behavioral objectives were prepared for each of the five contexts, and these were stated in terms of specific student/pupil behavior(s) which can be observed and measured. The behavioral objectives contained and expressed the basic competencies required of competent teachers.

Instructional modules were then developed which incorporated the behavioral objectives. A module is a short course or topic outline covering anywhere from an hour to several weeks of instruction and consists of a behavioral objective(s), a rationale to explain the significance of what is to be learned, suggested instructional activities, materials to be used and evaluation procedures. After being identified and created, modules are reviewed and sequenced in the usual course structure common to American higher education. The number of modules placed in a course depends upon the average number that can be completed by students in an instructional quarter of ten weeks.

The basic design of The University of Toledo CBTE program is presented in Figure 1. The figure depicts all of the professional coursework in the program which comprises three "career decision" courses taken by both elementary and secondary teacher education students, four "block" courses for elementary trainees and two "block" courses for secondary trainees, with all "block" courses being followed by all day, full-quarter student teaching totaling 300 hours. All courses are accompanied by clinical, field-based experiences with children in schools amounting to an additional 300 hours of such experience. Each course is taught by a faculty team consisting of four or more faculty members assisted by graduate assistants. A "block" course usually meets two and one-half to three hours per day four days a week. The modules in the courses and the student teaching-field based experiences require teaching competencies that students are expected to master and demonstrate.

Space does not allow a complete description of all components of the CBTE program. (A more complete description of the program can be found on pages 19-33 in the monograph listed on page 2.) However, it must be noted that the CBTE program established over ten years ago at The University of Toledo has matured, enjoyed considerable success, but has constantly been subject to change.

A Research/Evaluation Program to Identify and Measure Teacher Competencies

The University of Toledo program developers and operators knew that the basic idea of CBTE required concern and action for empirical student and program evaluation based on competency attainment. Once the necessary teaching competencies are identified for any teacher education program, teacher education students in teaching situations can be measured on the extent and proficiency of their teaching performance as that behavior reflects the program competencies considered. Such teacher effectiveness research in undergraduate teacher education is possible, although complex, and it must be attempted.

Research on teacher competence, teacher performance and teacher effectiveness has shown considerable productiveness in the decade of the 1970's. Researchers are now concluding that a research data base for the content of teacher education has been developed and is substantial enough to provide direction for teacher education efforts. Jane Stallings has perhaps expressed this point of view best in a very recent statement:

> "The research on teaching has been driven not so much by theory as by a curiosity about the nature of effective and ineffective teaching processes. In all cases, the researchers went to classrooms and observed what teachers and students were doing. They studied what was occurring in classrooms where students were making gains as well as where students were not making gains. Some of the studies used qualitative data, while others used quantitative data; some were conducted concurrently, others sequentially. The communication among those who conduct research on teaching tends to be frequent and constructive. As new studies are mapped, methodology and findings are compared to explore new frontiers of the teaching and learning territory. Thus, a body of knowledge regarding the management of time, tasks and students is accumulating and can be useful in guiding the training of inservice and preservice teachers."[2]

Donald Medley has made some useful distinctions in his research between the terms teacher effectivenss, teacher performance, and teacher competence. Teacher effectiveness is defined as the impact the teacher has on the pupils the teacher teaches. Teacher performance is defined in terms of the teaching behavior of the teacher on the job. Teacher competence is considered the repertoire of professional knowledges, professional skills and professional

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[2] Jane Stallings, "Allocated Academic Learning Time Revisited, or Beyond Time-on-Task," Educational Researcher, Vol. 9, No. 11, (December 1980), p. 16.

value positions the teacher brings to the job. Figure 2, "A Conceptual Diagram of the Elements Involved in Teacher Research and Evaluation," by Medley, illustrates these definitions and the basic conception behind teacher effectiveness research.

The diagram indicates that there are five points in teacher preparation and service where teacher assessment can occur to provide information on teacher competence, performance and effectiveness. The specific point used for assessment will depend upon the purpose for which the assessment is made.

The first assessment point concerns the characteristics that an individual brings to teacher preparation and these can be measured when a student first declares that he/she wishes to enter the teaching profession.

A second assessment situation occurs at the end of the teacher training experience in what is known as the student-teacher situation where teacher competence can be directly assessed at the culmination of teacher training experiences. A third assessment concerning teacher performance is an examination of actual teacher behavior on-the-job, the first and subsequent early years of inservice teaching. The influences which can affect such teacher performance are the pre-existing teacher characteristics, previous teacher training experiences, and two additional factors which have not heretofore been involved--the situational context in which the teacher works and how the teacher feels about the job, teacher attitudes/motivation.

The fourth and fifth assessment points concern the measurement of teacher effectiveness or the evaluation of teachers not strictly on the basis of their teaching behaviors but rather on the learning experiences and educational outcomes of their pupils. Specifically, the fourth assessment assumes that teacher assessment is effected, directly or indirectly, by a variety of influences, only one of which is teacher performance. Such influences are pupil motivation and various contextual variables intrinsic to or impinging upon the learning situation. The fifth, final assessment of teacher effectiveness is the measurement of pupil knowledge, abilities and/or attitudes after instruction. Again, some of these outcomes are attributable to the teacher but other variables are also present including those in another contextual situation (III) which interacts with pupil learning experiences to determine how much a pupil will learn from such experiences.

The research effort going on at The University of Toledo to identify and measure teacher competencies is that occurring at the second assessment level in the Medley diagram. Information will now be presented to indicate how such assessment occurs and the results of such activity.

Observation Systems to Measure Competencies. Two observational systems have been utilized: high inference observation and low inference observation. The high inference observation system is that developed at the University of Georgia for the State Department of Education in Georgia which requires the observer to make substantial inferences as to what competencies are being demonstrated and the quality of such demonstration. The behavior of the teacher is not recorded. An observer works from a stated set of indicators and descriptors for the competencies to be measured and then makes a judgment as to how well teacher performance fits the indicators/descriptors. Such a system requires a good deal of observer judgment about what is occurring in

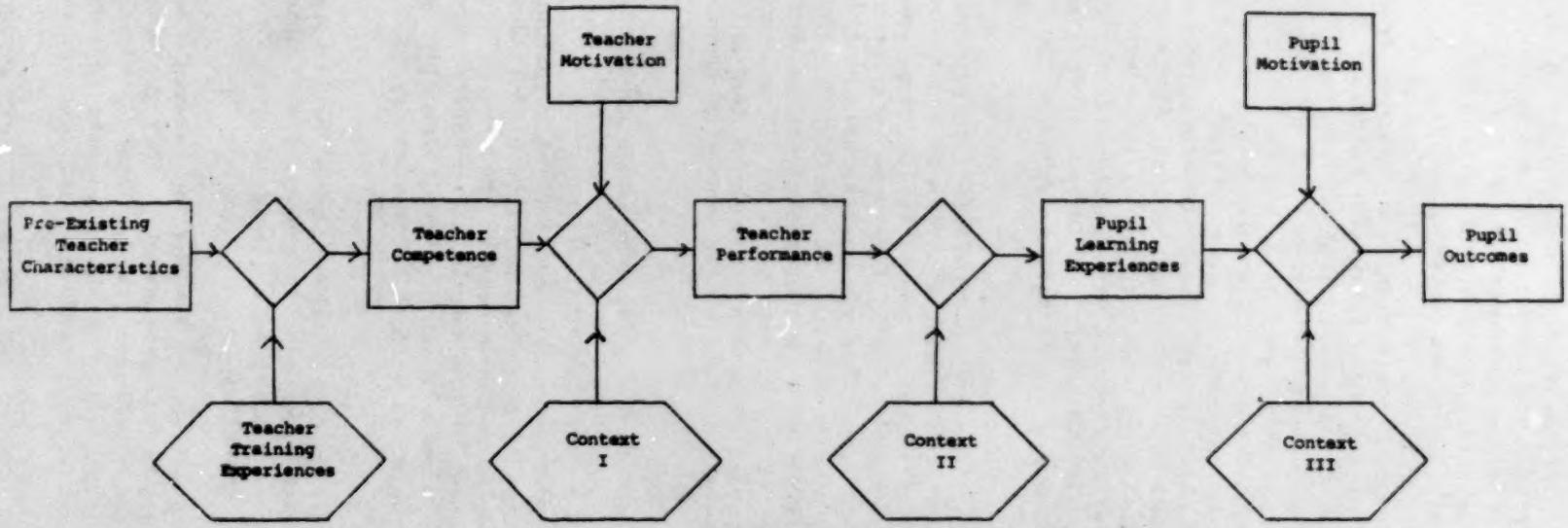

Figure 2. A CONCEPTUAL DIAGRAM OF THE ELEMENTS INVOLVED IN TEACHER RESEARCH AND EVALUATION.

From: Donald M. Medley, "The Role of Teacher Competency Assessment," COMPETENCY ASSESSMENT IN TEACHER EDUCATION: MAKING IT WORK, Conference Resource Book. (Compiled by Donna Gollnick, Sharon McMullin, and Karl Massanari). Washington, D.C.: American Association of Colleges for Teacher Education, 1980. pp. 1-60. (Used by permission of the author.)

the classroom. A scaled score of one to five is used with the indicators/descriptors and the scores derived for each competency are summed with a mean computed. The University of Georgia instrument called The Teacher Performance Assessment Instrument (TPAI) provides our institution with information on 45 of our basic 49 teacher education program competencies.

In contrast to high inference observation, low inference observation, utilizing the Classroom Observation Keyed for Research (COKER) instrument (this instrument was formerly called Georgia Assessment of Teacher Effectiveness, GATE) involves specific teacher/student behaviors which are defined with sufficient precision that observers will agree as to whether or not they have occurred. The process of low inference observation is one of recording behaviors that have been observed; no more, no less. Later, the incidence (or lack thereof) of individual behaviors are usually combined, according to some type of scoring algorithm, into scores on competencies. The scoring is objective, it can be done by a clerk or a computer, and no inferences are required in translating the observation into scores once the algorithm has been defined. The COKER instrument provides The University of Toledo information on 22 of its basic 49 program competencies. Overlapping between the two instruments occurs on 18 competencies.

It is not possible in the time and space allotted to present the findings of the initial pilot study with CBTE students at The University of Toledo. However, the reader is provided a list of the 49 Toledo Competencies assessed with the high (TPAI) and low (COKER or GATE) inference instruments (Table 1), the profile of mean competency scores for student teachers on the TPAI (Figure 3), and the profile of mean competency scores on the COKER or GATE (Figure 4). This information supplies general data on the way University of Toledo student teachers scored on both types of instruments in terms of the competencies assessed. More detailed information on the instruments used and data presentation and analysis is found on pages 52-82 in the monograph mentioned on page two.

On the basis of complete data analysis, some basic conclusions can be reported.

(1) It is possible to synthesize the "content" of a teacher education program into a set of identifying competencies intended to be developed by the program and then measure the program's competencies through the assessment of student teacher behavior, with some degree of confidence. Such measurement provides information about the adequacy of the program as well as the competency of the students graduating from it.

(2) University of Toledo student teachers scored well above the midpoint on the high inference assessment instrument (TPAI) which indicated that the program competencies established for them were being demonstrated in student teaching.

(3) Because the scoring procedures for the low inference instrument (COKER or GATE) rely on comparisons with other teacher groups (scaled scores are not used), The University of Toledo student teachers showed remarkable consistency in their teaching performance across all competencies measured. In essence, their competency scores were

TABLE 1

UNIVERSITY OF TOLEDO COMPETENCIES ASSESSED BY INDICATORS ON THE TPAI AND GATE INSTRUMENTS AND COMPETENCY SYMBOL INDICATING SUCH ASSESSMENT

	Competency Statement	TPAI Symbol	GATE Symbol
Topic:	Planning, Teaching Materials/Equipment and Evaluation.		
1.	Plans units of instruction.	T-1	None
2.	Plans instruction at a variety of cognitive levels.	T-2	None
3.	Can state pupil outcomes and/or student course objectives in behavioral terms (behavioral objectives).	T-3	None
4.	Has realistic expectations for the learning process and student readiness for learning.	T-4	None
5.	Gathers, organizes, and evaluates pertinent information about students for effective instruction.	T-5	None
6.	Identifies and evaluates learning problems of students in content area being taught.	T-6	None
7.	Keeps informed of current professional/subject area literature and curricular learning materials/ resources available.	T-7	None
8.	Knows how to select (or construct), organize and use appropriate instructional materials and equipment to facilitate learning activities.	T-8	None
9.	Uses criteria and effective procedures for determining pupil achievement of learning objectives.	T-9	None
10.	Selects/develops appropriate assessment techniques and instruments for instructional activities.	T-10	None
11.	Collects, quantifies, and interprets data from appropriate assessment instruments.	T-11	None
12.	Maintains evaluation records.	T-12	None
13.	Engages in professional development by obtaining and analyzing evaluative information concerning the effectiveness of instruction.	T-13	None
14.	Uses information about the effectiveness of instruction to revise it, with possible curriculum modifications.	T-14	None

TABLE 1 Cont.

	Competency Statement	TPAI Symbol	GATE Symbol
Topic:	Planning, Teaching Materials/Equipment and Evaluation, continued.		
15.	Relates to accountability issues concerning responsibilities to students, parents, and the instructional process.	T-15	None
Topic:	Instructional Strategies, Techniques, and/or Methods.		
16.	Uses a variety of instructional strategies.	T-16	T-16
17.	Uses convergent and divergent inquiry strategies.	None	T-17
18.	Develops and demonstrates problem solving skills.	None	T-18
19.	Establishes transitions and sequences in instruction which are varied.	T-19	T-19
20.	Modifies instructional activities to accommodate identified learner needs.	T-20	T-20
21.	Demonstrates ability to work with individuals, small groups, and large groups.	T-21	T-21
22.	Structures the use of time to facilitate student learning.	T-22	T-22
23.	Uses a variety of resources and materials.	T-23	T-23
24.	Provides learning experiences which enable students to transfer principles and generalizations to situations outside of school.	T-24	T-24
25.	Provides assignments/learning opportunities interesting and appropriate to different ability levels of pupils.	T-25	None
26.	Demonstrates knowledge in the subject areas.	T-26	None
27.	Demonstrates self-direction and conveys the impression of knowing what to do and how to do it.	T-27	None
28.	Works effectively as a member of an instructional team.	T-28	None
29.	Uses acceptable written and oral expression with learners.	T-29	None
30.	Adjusts components of the physical/learning environment over which the teacher has control to facilitate learning.	T-30	None

TABLE 1 Cont.

	Competency Statement	TPAI Symbol	GATE Symbol
Topic:	Communication with Learners.		
31.	Provides group communication (cooperation, interaction, learning from others) experiences for students.	T-31	T-31
32.	Uses a variety of functional verbal and nonverbal communication skills with students.	T-32	T-32
33.	Gives clear directions and explanations.	T-33	T-33
34.	Motivates students to ask questions.	T-34	T-34
35.	Uses questions that lead students to analyze, synthesize, and think critically.	None	T-35
36.	Accepts varied student viewpoints and/or asks students to extend or elaborate answers or ideas.	T-36	T-36
37.	Demonstrates proper listening skills.	None	T-37
38.	Provides feedback to learners on their cognitive performance.	T-38	T-38
39.	Expresses a positive personal attitude toward the teaching profession.	T-39	None
Topic:	Learner Reinforcement-Involvement.		
40.	Maintains an environment in which students are actively involved, working on-task.	T-40	T-40
41.	Implements an effective classroom management system for positive student behavior (discipline).	T-41	T-41
42.	Uses positive reinforcement patterns with students.	T-42	T-42
43.	Assists students in discovering and correcting errors and inaccuracies.	T-43	T-43
44.	Develops student feedback, evaluation skills, and student self-evaluation.	T-44	T-44
Topic:	Professional Standards.		
45.	Accepts responsibility, is dependable.	T-45	None
46.	Evidences cooperation with others (teachers, administrators, support staff, parents, etc.) in planning and teaching.	T-46	None
47.	Acts as an appropriate model in terms of ethics, attitudes, and values.	T-47	None

TABLE 1 Cont.

Competency Statement	TPAI Symbol	GATE Symbol
Topic: Professional Standards, continued.		
48. Attends teacher and other professional meetings.	T-48	None
49. Understands and follows school law, policies, and procedures and their effects on teachers, and teaching, including professional conduct standards.	T-49	None

PROFILE OF MEAN COMPETENCY SCORES ON TPAI FOR UNIVERSITY OF TOLEDO STUDENT TEACHERS

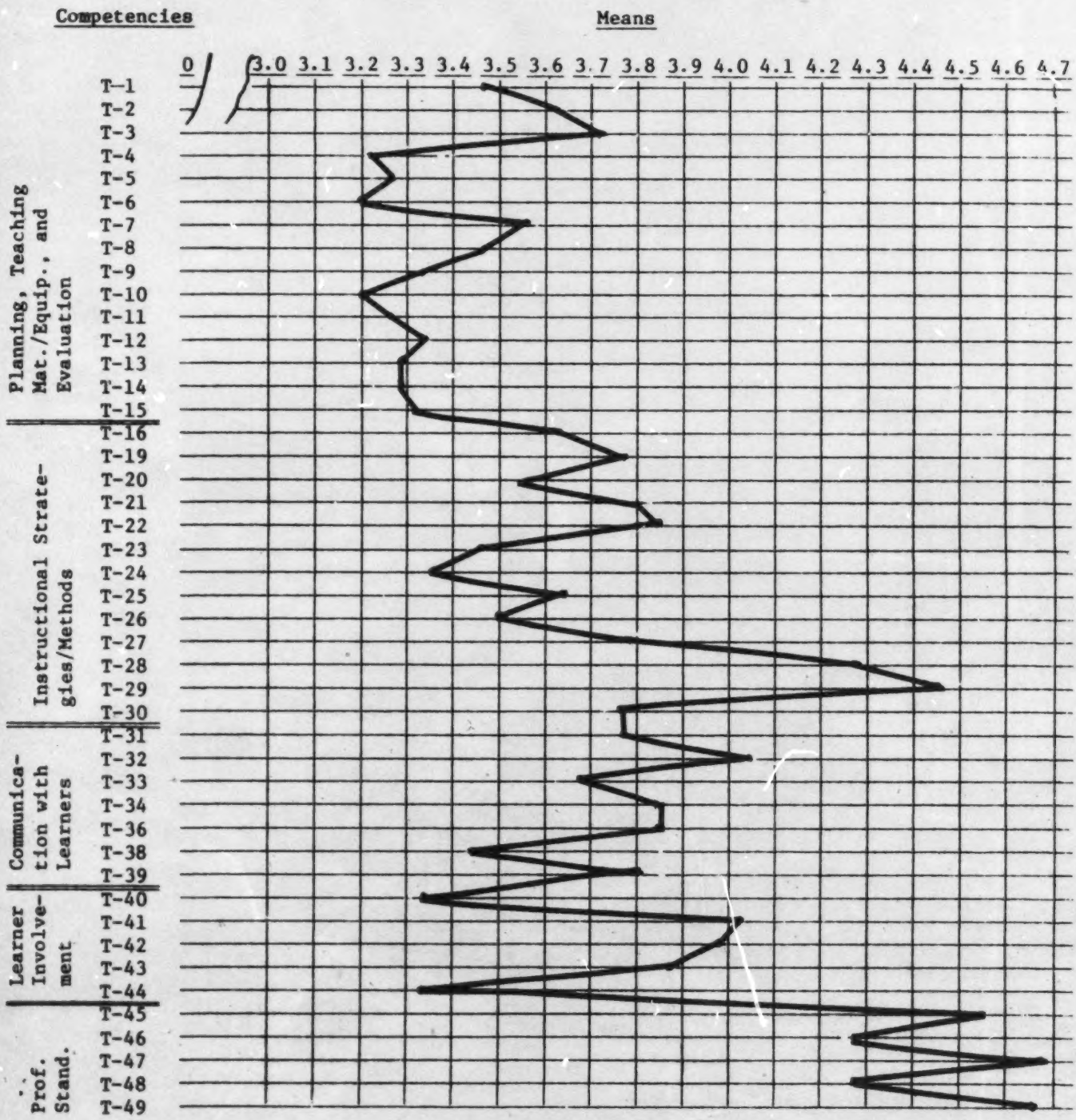
Competencies
Means
0
3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4 4.5 4.6 4.7
Planning, Teaching Mat./Equip., and Evaluation
Instructional Strategies/Methods
Communication with Learners
Learner Involvement
Prof. Stand.
T-1 T-2 T-3 T-4 T-5 T-6 T-7 T-8 T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-16 T-19 T-20 T-21 T-22 T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 T-31 T-32 T-33 T-34 T-36 T-38 T-39 T-40 T-41 T-42 T-43 T-44 T-45 T-46 T-47 T-48 T-49

Figure 3

PROFILE OF MEAN COMPETENCY SCORES ON GATE FOR UNIVERSITY OF TOLEDO, GEORGIA STATE COLLEGE, GEORGIA COLLEGE STUDENT TEACHERS AND DeKALB COUNTY TEACHERS ON U.T. COMPETENCIES

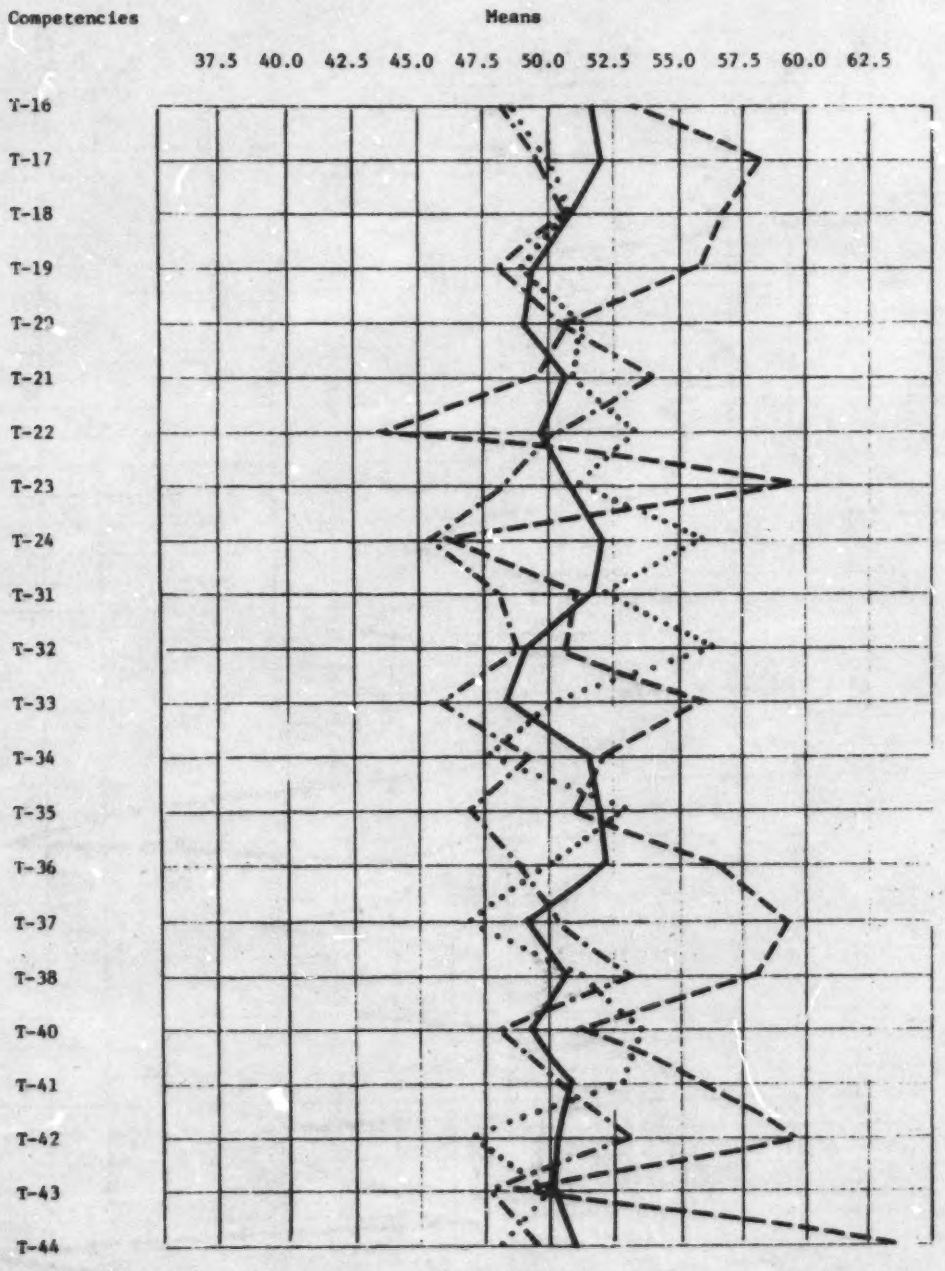

Figure 4

University of Toledo Teachers ———

Georgia State College Teachers ·—·—·

Georgia College Teachers — — — —

DeKalb County Teachers ·····

more like those of experienced teachers (one or more years of teaching) than the scores obtained for student teachers from other colleges.

(4) A factor analysis of the high and low inference instrument data supported the general contention that there were discrete, underlying traits or constructs of teaching. The 49 competencies did not collapse into a single, omnibus factor.

(5) When the same competency was measured on both the high and low inference instruments there was a lack of correlation between the scores obtained. This situation likely reflects a difference in measurement approaches, although the measurement of teacher competency should not be instrument dependent. More research is being conducted concerning this finding with new data available since the pilot study was completed.

(6) Information about teacher competencies can be obtained for student teachers as a group and individually. Comparisons between individuals can be made for specific competencies or by student teacher groups on specific competencies. Profiles of competencies of individuals can be used for diagnostic purposes. Individual competency successes and difficulties can be identified and provided to student teachers during their student teaching as a cumulative means of student teaching evaluation. The evaluation of student teaching can become more objective and predictive of teacher success using high and low inference measures.

(7) The information obtained for groups of student teachers can be used for purposes of standardizing the mean scores for University of Toledo student teachers and to note the deviations from the means in terms of specific competencies. From such information, questions can be raised concerning the effectiveness of the teacher education program, where it can be improved, and what needs to be done to improve it.

(8) The type of competency study and assessment described in this report can be extended to teachers in regular teaching positions as a follow up of an institution's graduates. Further, such effort could be combined with research to relate pupil achievement and long term gain to teacher competency measures which is not possible in a short term student teaching situation.

It is obvious that the more we understand about teacher performance the better the skills of pedagogy can be developed to improve that performance. A useful research/evaluation procedure has been pioneered at The University of Toledo with its unique competency-based teacher education program. The dual efforts of innovative program and research/evaluation development has resulted in the production of decidedly better, more competent teachers which is basic to educational improvement worldwide.